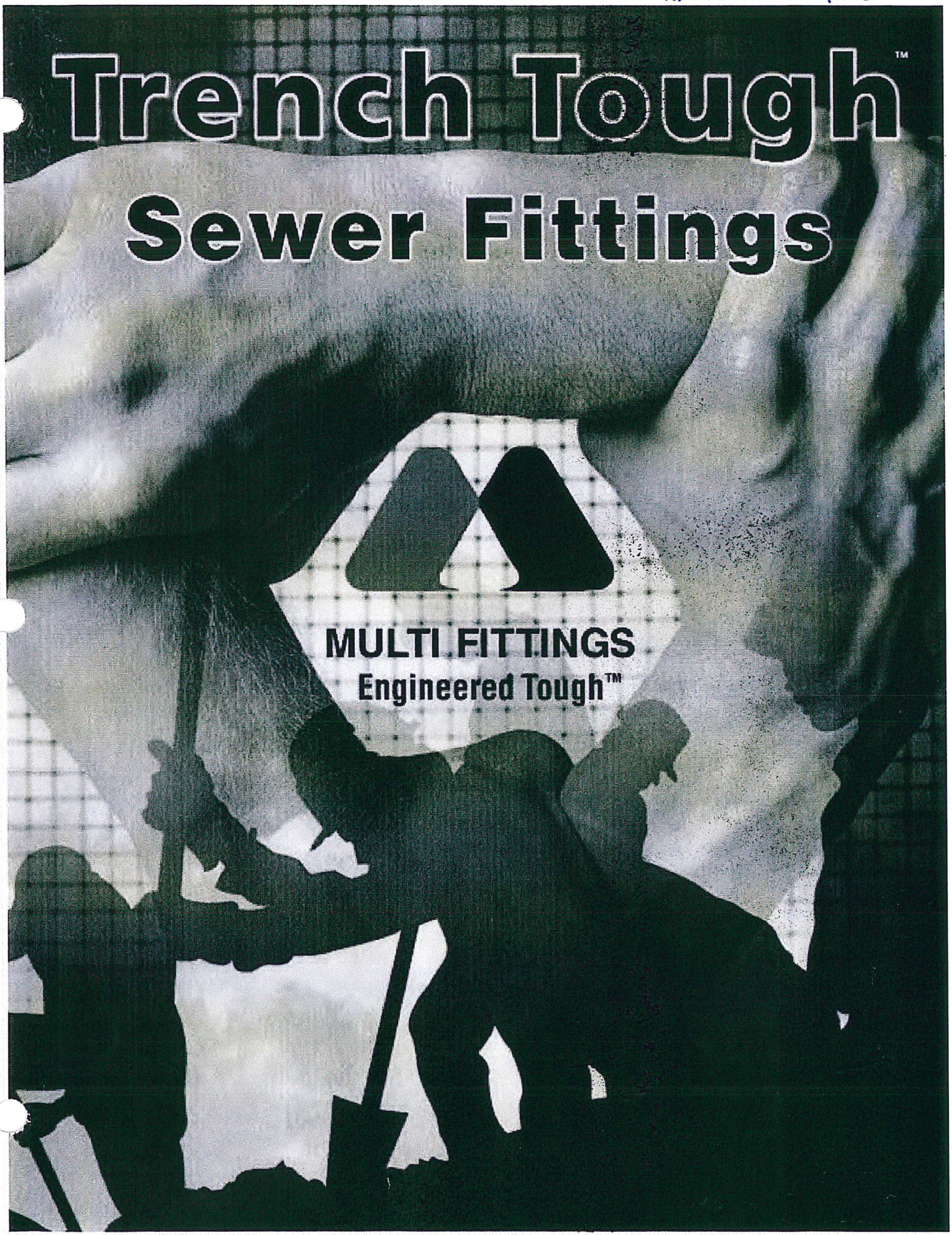
RRSPL – WW – 4000



MULTI FITTINGS
Engineered Tough™

At Multi Fittings Corporation we produce the broadest range of water and sewer fittings available in North America today. All Multi fittings are made of noncorroding PVC, a material immune from the attack of aggressive soils, chemicals and hydrogen sulfide gas.

Multi Fittings injection molds gasketed sewer fittings from 4" to 15" in diameter and fabricates an extensive line of gasketed sewer fittings from 18" to 48" to complete the size range. Multi's family of Trench Tough™ sewer fittings include gasketed SDR35 fittings, gasketed Heavy Wall SDR26 fittings and CIOD gasketed sewer fittings for C900 pipe.

ENGINEERED TOUGH™ FITTINGS

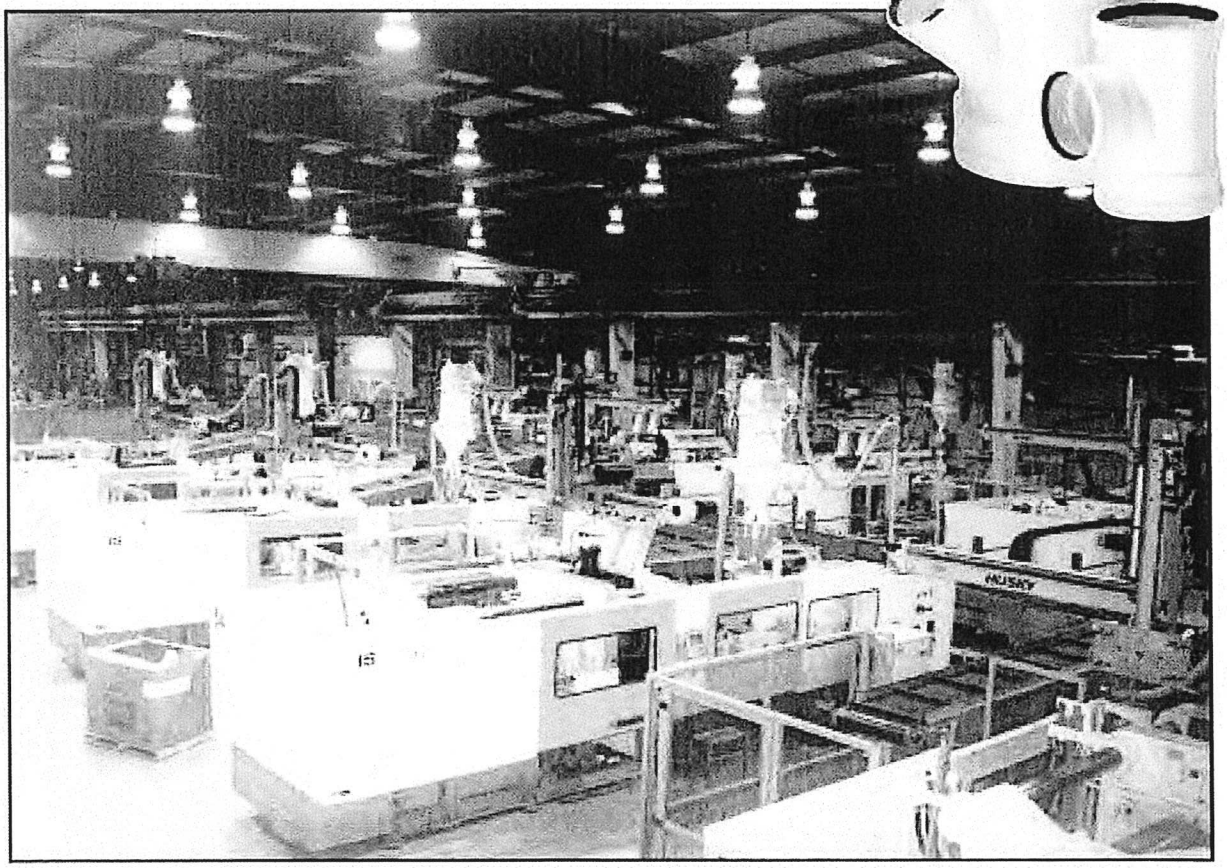
TRENCH TOUGH™ QUALITY

TRENCH TOUGH™

Our well being is dependent on the health of our municipal infrastructure. The public relies on the effective removal, transportation and treatment of raw sewage while eliminating the high cost of treating ground water infiltration. To address this need, Multi Fittings maintains a program for continuous product improvement to meet the ever-changing needs of the sewer industry. Today, we are pleased to bring you the next generation of fittings for your underground sewage system - the Trench Tough™ sewer fitting.

For over 50 years, Multi Fittings has led the underground sewer industry in the production of gasketed fittings designed to eliminate infiltration and exfiltration. Our engineering group is a leader in PVC material research and formulation, gasket profile construction, structural design of fittings, and advanced molding technology. As a result, our engineered fittings are rugged, durable and stand up to the most severe underground conditions, including high ground loads from deep burials, spring thaws, and expansive soil conditions.

Recent advances developed by our engineering group have produced one of the strongest, most robust fittings in the industry today. At Multi, we understand the dynamics of fittings in deep burial applications. Extensive testing and years of experience prove that properly installed Trench Tough sewer fittings will withstand tremendous load pressures developed by deep burial installation over the lifetime of the sewer system.

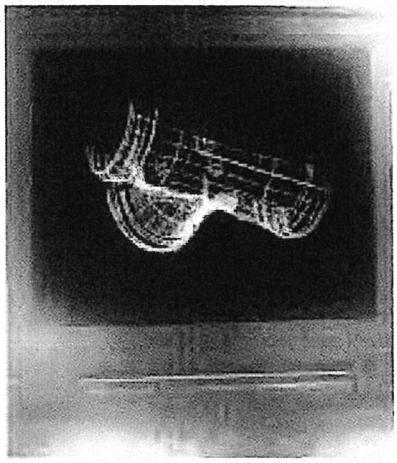


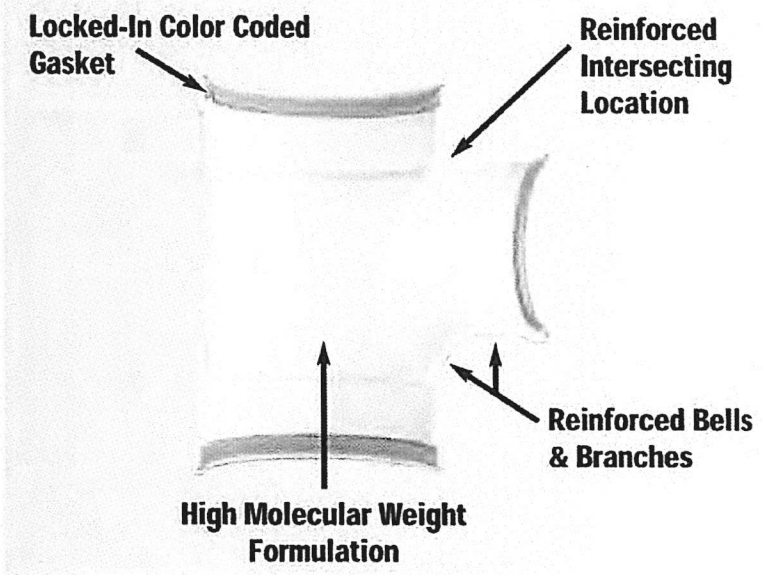
MULTI FITTINGS
Engineered Tough™

ENGINEERED TOUGH™

Our engineered design is just the beginning. Multi's engineers have examined all critical fitting intersecting locations in our Trench Tough Sewer product line. The body and branches of our Trench Tough sewer fittings have been engineered to resist severe loads encountered in deep burials. As a result, incredible reserves of strength have been built into all of our service fittings with 4" and 6" outlets. The branches, bells, and intersecting locations have been reinforced in all Tees, Wyes and T-Wyes.

All of our Trench Tough SDR35 service fittings with 4" and 6" outlets come complete with SDR26 branches, bells, and intersecting locations. In fact, when ordering a Heavy Wall SDR26 service fitting from Multi you actually receive a SDR24 "Extra Heavy Wall" fitting. These reinforced walls provide additional strength to handle the stresses induced by heavy soil loads. This results in increased insurance against poor trench and bedding conditions or deep burial installations.





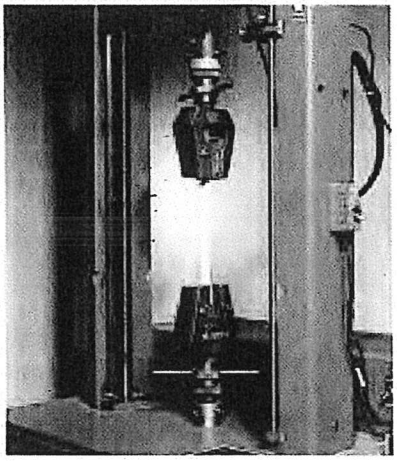
Percent (%) Deflection of TRENCH TOUGH SDR35 AND TRENCH TOUGH SDR26 HEAVY WALL FITTINGS

ASTM EMBEDMENT MATERIAL CLASSIFICATION		DENSITY (PROCTOR) AASHTO T-99	E' psi	SDR	HEIGHT OF COVER (ft.)											
					1	2	5	10	15	20	25	30	35	40	45	50
Manufactured Granular Angular	CLASS I	90%	3,000	35	0.7	0.5	0.3	0.4	0.7	0.9	1.1	1.3	1.5	1.8	2.0	2.2
				26	0.7	0.5	0.3	0.4	0.6	0.8	1.0	1.3	1.5	1.7	1.9	2.1
Clean Sand & Gravel	CLASS II	90%	2,000	35	1.1	0.7	0.5	0.7	1.0	1.3	1.6	1.9	2.3	2.6	2.9	3.2
				26	1.0	0.7	0.4	0.6	0.9	1.2	1.5	1.8	2.1	2.4	2.7	3.0
		80%	1,000	35	2.0	1.4	0.9	1.2	1.8	2.5	3.0	3.7	4.3	4.9	5.5	6.0
				26	1.7	1.2	0.8	1.1	1.6	2.1	2.7	3.2	3.7	4.3	4.8	5.3
Sand & Gravel with Fines	CLASS III	90%	1,000	35	2.0	1.4	0.9	1.2	1.8	2.5	3.0	3.7	4.3	4.9	5.5	6.0
				26	1.7	1.2	0.8	1.1	1.6	2.1	2.7	3.2	3.7	4.3	4.8	5.3
		85%	500	35	n/r	2.5	1.6	2.2	3.4	4.5	5.6	6.7	7.8	8.9	10.0	11.2
				26	n/r	1.9	1.2	1.8	2.6	3.5	4.4	5.3	6.1	7.0	7.9	8.8
Silt & Clay	CLASS IV	85%	400	35	n/r	3.0	1.9	2.7	4.0	5.3	6.6	8.0	9.3	10.7	12.0	13.3
				26	n/r	2.2	1.4	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0

1. **Deflection value shown include effect of H-20 live load and dead load.**
2. External loading based upon a prism load of soil weight of 120 lbs. per cubic foot.
3. Bedding classifications correspond to ASTM D2321.
4. The deflection lag factor is 1.0 for a prism load.
5. Recommended maximum deflection of 7.5% provides a generous 4 to 1 factor of safety.
6. n/r = not recommended

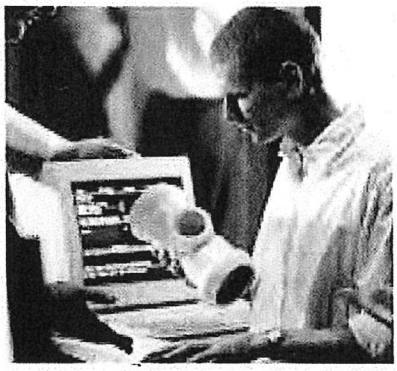
TRENCH TOUGH™ SEWER FITTINGS

COMPOUND TOUGH



Formulating the right compound shows what we're really made of. Our chemists and engineers understand technology, the manufacturing process, and how to blend unique and proprietary compounds that optimize our fitting designs. As a result, Multi uses a high molecular weight PVC formulation in all Trench Tough sewer fittings. This high molecular weight compound was engineered for superior resistance to deformation and cracking under severe load. Our proprietary formulation is designed to enhance the tensile and flexural qualities of the fittings, eliminating the expensive maintenance and repair programs common with today's infrastructure. This new compound has a minimum cell classification of 12454 or 13343 as prescribed in ASTM D1784.

CERTIFIED TOUGH



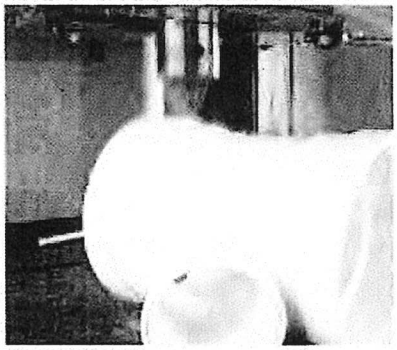
Quality is a never-ending process at Multi. Samples from each machine are randomly collected from daily production and tested by trained quality control specialists. Each series of tests is designed to exceed ASTM F1336, F679 and D3034 industry standards. In addition, all of our manufacturing plants and products are third party certified by an independent laboratory through unannounced inspections conducted by the Canadian Standards Association (CSA) and IAPMO. This ensures that our fittings are third party certified to CSA's standards B182.1 and B182.2 and by IAPMO to ASTM D3034.

ASTM F1336
ASTM F679
ASTM D3034

CSA B182.1
CSA B182.2

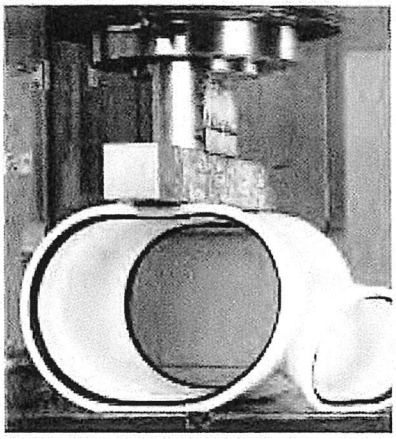
File Number: 1575

IMPACT TOUGH



The fittings must survive two different impact tests. The first is an ASTM F1336 impact test requirement conducted at room temperature. The second impact test is a severe cold weather impact test conducted at freezing or 32°F. In both cases Trench Tough sewer fittings exceed the recommended impact requirement of ASTM F1336 by 25%.

CRUSH TOUGH



Each installation provides unique challenges. That's why Multi has implemented a fitting crush test. We simulate load deflection by crushing the fitting, without soil side support, and measuring vertical deflection while observing the resulting stresses. We deflect the fittings to a minimum of 30%, while service fittings are subjected to a 50% crush without cracking or splitting. This test is designed to determine the injection quality of the fitting and to ensure deep burial compatability.

MULTI FITTINGS
Engineered Tough™

CORROSION TOUGH

High molecular weight PVC used in Multi Trench Tough fittings will neither rust nor corrode in aggressive soils. They will not deteriorate when in contact with commonly found chemicals present in effluent or in the ground. This eliminates the need for costly sacrificial anodes and expensive protective coatings often used with metal and concrete fittings. For more information on the excellent chemical resistance of PVC, please refer to our Chemical Resistance Guide.

JOINT TOUGH

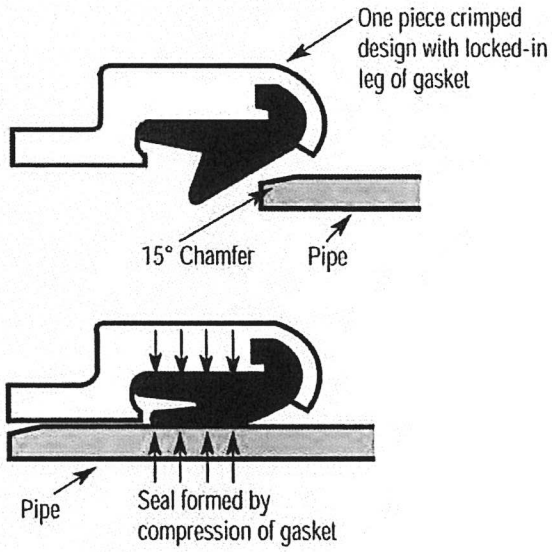
Designed With The Environment in Mind

Multi's molded Trench Tough gasketed sewer fittings are designed to meet the demands of the next century. The unique design began with the development of an engineered gasketing system.

In 1992, Multi developed a one piece crimped design wedge gasket with a locked-in leg. The gasket material is optimally designed for a durometer rating of 45 which ensures a water-tight joint every time.

The patented locked-in design gives a 35% compression ratio for the sealing area. This is one of the highest gasket sealing surface areas available in the market today. The patented locked-in design eliminates the possibility of displacement or "fish mouthing" of the gasket during spigot insertion.

Patented Joint Design



The Tightest Joint in the Industry

As an added quality control assurance, Multi has third party tested the gasketed seal to 15 psi positive pressure and 10.8 psi vacuum pressure. Both of these tests are conducted with the joint in straight alignment, deflected 5°, and load deflected 5%.

All Multi gasketed sewer fittings are capable of handling a 15 psi internal pressure providing one of the tightest joints in the industry. The pressure rating of the gasketed joint adds a safety factor and may allow pipe and fittings to be used in a common trench with potable water lines.

These watertight assemblies protect underground water systems against contamination, prevent the deterioration of surface structures such as roads and reduce the overall costs of sewage treatment. Infiltration and exfiltration are reduced well below the stringent 50 U.S.gal./in.dia./mile/day allowed for PVC pipe and fittings.

Joint Tightness			
	ASTM	**Canadian Standards Assoc.**	**Multi Fittings**
Standard	D3034, F1336, F679	CSA B182.2	Quality Control
Positive Pressure (psi)	10.8 psi	15.0 psi	15.0 psi
Vacuum Pressure (psi)	10.8 psi	10.8 psi	10.8 psi
Time (minutes)	10 min.	10 min.	10 min

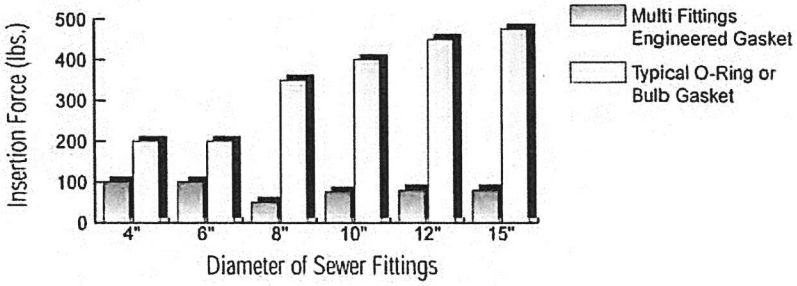
Reduced Insertion Forces for Reliable Joints

The Multi patented wedge design reduces the higher insertion forces required to provide a seal with a traditional o-ring or bulb gasket.

Over the years, through engineering optimization, Multi has decreased the amount of force required to insert SDR35 or SDR26 pipe into the bell of a Trench Tough fitting while maintaining the stringent sealing requirements of ASTM and CSA.

Lower insertion forces result in quicker installations while maintaining water-tight joints.

Typical Insertion Forces of Sewer Fittings

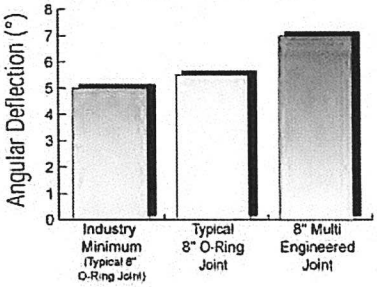


Engineered Bell Depth

All Multi Trench Tough gasketed sewer fittings have engineered bell depths designed to provide maximum joint deflection while maintaining a positive seal. This joint deflection design allows installers to accommodate for small offsets which may eliminate the need for additional fittings. The engineered joint deflection can also accommodate for differential ground settlement, or expansion and contraction without compromising the integrity of the sewage system.

It should be noted that longer bells are only a benefit for solvent weld sewer fittings. They provide a longer solvent cementing area for better bonding. With a gasketed fitting, the gasket design is the major consideration for sealing and not the actual bell depth.

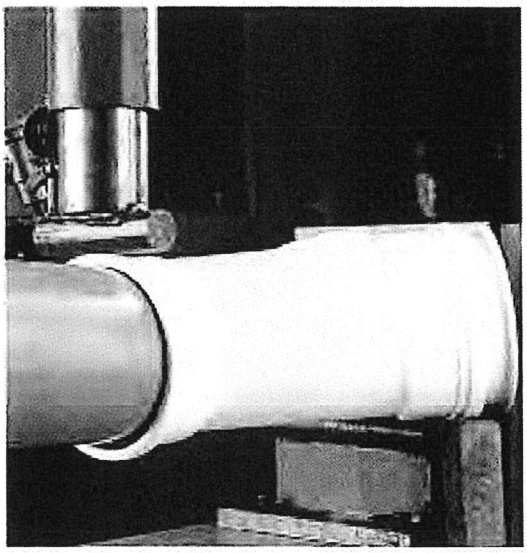
Typical Maximum Angular Deflection of Gasketed Sewer Joints



ABOUT THE CANADIAN STANDARDS ASSOCIATION

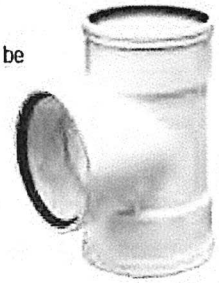
The Canadian Standards Association (CSA) is an independent third party testing laboratory with a standards writing section. When CSA certiifes a product, the product becomes part of an ongoing testing and policing program. To ensure compliance to the standards, CSA arrives unannounced at manufacturing plants and conducts appropriate tests on all newly manufactured products. The result of this third party certification is that you, the engineer, contractor, distributor or municipal decision maker, can be sure that the product you purchase from Multi Fittings strictly adheres to the rigid standards of CSA.

CSA B182.1
CSA B182.2



MULTI FITTINGS
Engineered Tough™

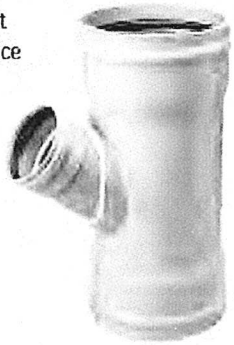
TRENCH TOUGH™ SDR35 GASKETED SEWER FITTINGS



All Gasketed Sewer Fittings 4" through 15" shall be molded and comply with ASTM F1336 and D3034 standards. All fittings shall be manufactured from a high molecular weight compound having a minimum cell classification of 12454 or 13343 per ASTM D1784. All molded Wyes, T-Wyes and Tees must be a minimum of a SDR26 thickness where the branch connects to the body of the fitting. In addition, all outlets 4" through 6" service branches and bells must have a minimum of a SDR26 thickness. Materials used for gaskets must conform to the requirements of ASTM F477 or F913. All fittings must be manufactured with a locked-in gasket having a durometer rating of 45. These fittings must be third party certified to CSA B182.1 and/or CSA B182.2.

Approved product: Multi Trench Tough SDR35 Sewer Fitting

TRENCH TOUGH™ SDR35 FABRICATED GASKETED SEWER FITTINGS



All fabricated Gasketed Sewer Fittings 18" through 48" shall be made from segments of third party certified SDR35 pipe that exceeds the requirements of ASTM F679. The fittings shall consist of butt fused or welded pipe and solvent cemented service branches. All 4" through 6" service branches must be a minimum of SDR26 wall thickness. The fittings must conform to ASTM F1336 and F679 standards. All fittings shall be third party certified to CSA B182.1 and/or CSA B182.2

Approved product: Multi Trench Tough SDR35 Sewer Fitting

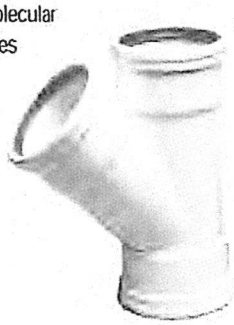
Multi Trench Tough SDR35 Gasketed Sewer Fittings meet these standards:

ASTM F1336, F679 & D3034

CSA B182.1
CSA B182.2

IAPMO
File Number: 1575

TRENCH TOUGH™ SDR26 HEAVY WALL SEWER FITTINGS



All heavy wall SDR26 gasketed sewer fittings shall conform to ASTM F1336 and D3034 and shall be manufactured from a high molecular weight compound having a minimum cell classification of 12454 or 13343 as prescribed in ASTM D1784. All molded Wyes, T-Wyes and Tees must be a minimum of a SDR24 thickness for body of the fitting. In addition, all outlets 4" through 6" service branches, bells and bodies must have a minimum of a SDR24 thickness. Materials used for gaskets must conform to the requirements of ASTM F913 or ASTM F477. All fittings must have a locked-in grey color coded gasket.

Approved product: Multi Trench Tough SDR26 Heavy Wall Sewer Fitting

Multi Trench Tough SDR26 Heavy Wall Sewer Fittings meet these standards:

ASTM F1336
ASTM D3034

TRENCH TOUGH™ CIOD SEWER FITTINGS FOR C900 PIPE

4" to 8" CIOD gasketed sewer tees, couplings, elbows, plugs and reducers shall conform to AWWA C907 and be third party certified to CSA B137.2. They shall be UL listed and FM approved. All other configurations must have a minimum DR18 wall thickness. DR18 fittings shall be made from a compound with a minimum cell classification of 12454 per ASTM D1784. The compound must have a minimum Hydrostatic Design Basis of 4,000 psi and must be listed with the National Sanitation Foundation.

*Fabricated CIOD fittings shall be made from segments of DR18 AWWA C900 or C905 pipe bonded together and over-wrapped with fibreglass-reinforced polyester. The pipe stock used to manufacture the fittings must be third party certified to CSA B137.3 and conform to AWWA C900/C905.

Approved product: Multi Trench Tough CIOD Sewer Fitting

Multi Trench Tough CIOD Sewer Fittings meet these standards:

AWWA C907
4" to 8"

NSF-61
Compound listed by National Sanitation Foundation for potable water service

CSA B137.2
4" to 8"

*This does not apply for all configurations. See above paragraph.

ENGINEERED TOUGH™ FITTINGS

Pressure Fittings

Blue Brute™ Pressure Fittings

Injection Molded
4" - 12"
Fabricated
10" - 48"

Cycle Tough 4000™ IPS Pressure Fittings

Injection Molded
1½" - 8"
Fabricated
10" - 24"

Trench Tough™ Sewer Fittings

Trench Tough™ SDR35 Gasketed Sewer Fittings

Injection Molded
4" - 15"
Fabricated
12" - 48"

NEW! 15" Molded Fittings

Trench Tough™ SDR26 Heavy Wall Sewer Fittings

Injection Molded
4" - 8"
Fabricated
8" - 18"

Trench Tough™ CIOD Sewer Fittings for C900 Pipe

Injection Molded
4" - 12"
Fabricated
4" - 24"

Sewer Fittings

Ultra Rib™ Sewer Fittings

Injection Molded
8" - 12"
Fabricated
12" - 24"

SDR35 Solvent Weld Sewer Fittings

Injection Molded
3" - 8"
Fabricated
8" - 15"

SCH 40 PVC DWV Fittings

Injection Molded
6" - 8"
Fabricated
8" - 24"

MULTI FITTINGS
Engineered Tough™

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